

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the present application.

Listing of Claims:

Claim 1 (currently amended): Low-resistivity *n*-type semiconductor diamond characterized in containing 10^{17} cm^{-3} or more of lithium atoms and nitrogen atoms together; wherein:

the lithium-atom concentration C_{Li} and the nitrogen-atom concentration C_N within the low-resistivity *n*-type semiconductor diamond are $0.1 \leq C_{Li}/C_N \leq 10.0$; and
the center-to-center distance between the lithium atoms and nitrogen atoms is from 0.145 nm to 0.155 nm.

Claim 2 (canceled)

Claim 3 (original): Low-resistivity *n*-type semiconductor diamond as set forth in claim 1, wherein the low-resistivity *n*-type semiconductor diamond is a single-crystal diamond.

Claim 4 (original): Low-resistivity *n*-type semiconductor diamond as set forth in claim 1, wherein:

lithium atoms are doped into interstitial lattice sites between carbon atoms constituting the diamond, and nitrogen atoms are doped into sites where they replace the carbon atoms; and

the lithium atoms and the nitrogen atoms hold arrangements that neighbor each other.

Claim 5 (canceled)

Claim 6 (original): Low-resistivity *n*-type semiconductor diamond as set forth in claim 4, characterized in having an activation energy of from 0.05 eV to 0.2 eV.

Claim 7 (original): Low-resistivity *n*-type semiconductor diamond as set forth in claim 4, characterized in having a resistivity of $10^3 \Omega \cdot \text{cm}$ or less.

Claim 8 (original): A method of manufacturing by a vapor synthesis technique onto a substrate low-resistivity *n*-type semiconductor diamond doped with lithium atoms and nitrogen atoms together, comprising photo-dissociating a source material by photoexcitation utilizing vacuum ultraviolet light.

Claim 9 (original): A method of manufacturing low-resistivity *n*-type semiconductor diamond as set forth in claim 8, further comprising irradiating an oxide of lithium set inside a chamber with an excimer laser beam to scatter lithium atoms from the oxide.

Claim 10 (original): A method of manufacturing low-resistivity *n*-type semiconductor diamond as set forth in claim 8, wherein source materials for the nitrogen and carbon are in gaseous form, and their supply quantities are $0.001 \leq \text{nitrogen amt.} / \text{carbon amt.} \leq 0.1$.

Claim 11 (original): A method of manufacturing low-resistivity *n*-type semiconductor diamond as set forth in claim 10, wherein the nitrogen source material is nitrogen gas or ammonia.

Claim 12 (original): A method of manufacturing low-resistivity *n*-type semiconductor diamond as set forth in claim 8, wherein the wavelength of the vacuum ultraviolet light is 65 nm or more but 75 nm or less.

Claim 13 (original): A method of manufacturing low-resistivity *n*-type semiconductor diamond as set forth in claim 9, wherein during the vapor synthesis the pressure is from 1330 Pa to 20,000 Pa.

Claim 14 (original): A method of manufacturing low-resistivity *n*-type semiconductor diamond as set forth in claim 8, wherein during the vapor synthesis the substrate temperature is 100°C or more but 1000°C or less.

Claim 15 (original): Low-resistivity *n*-type semiconductor diamond as set forth in claim 2, wherein the low-resistivity *n*-type semiconductor diamond is a single-crystal diamond.